

GEORGIA ENERGY SECTOR EVALUATION

Submitted to:

United States Agency for International Development (USAID)

In response to:

Contract AEP-I-00-00-00023-00

Task Order #806

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ACRONYMS

DSM	Demand Side Management
EBRD	European Bank for Reconstruction and Development
ESCO	Energy Service Company
FERC	Federal Energy Regulatory Commission
FSU	Former Soviet Union
GIC	Georgian Gas International Commission
GOG	Government of Georgia
GNERC	Georgia National Energy Regulatory Commission
IAS	International Accounting Standards
IR	International Results
KWh	Kilowatt hours
MW	Megawatt
MEP	Main Export Pipeline
PA	PA Consulting, Inc.
PSC	Public Service Commission
PUC	Public Utility Commission
SOW	Scope of Work
T.O.	Task Order
WEM	Union Georgia Wholesale Electricity Market
USEA	United States Energy Association

EXECUTIVE SUMMARY

INTRODUCTION

This report covers the evaluation of the USAID Energy Reform Program in Georgia. It covered the program from 1988 to the present. The work began in Washington, D.C. on July 10, 2001 and in Georgia on July 14, 2001. The three-person evaluation team in country until August 4, 2001. Available documentation was collected and reviewed. During this period over 39 people were interviewed. This report is presented in three sections; Part 1, an evaluation of the work of USAID's consultants, Part 2 an evaluation of the USAID energy program in Georgia and Part 3, proposed directions for future work.

CONSULTANTS' PERFORMANCE

This evaluation covers the work of four contractors; Carana Corporation, Nathan Associates, United States Energy Association and PA Consulting Inc. (formerly Hagler Bailey). The overall evaluation of the work was very satisfactory with some accomplishments truly outstanding. Weaknesses are more in the nature of the assignments given rather than the performance of individual contractors.

Carana Corporation converted the accounting systems of energy sector firms to IAS standards and conducted accounting training of accounting staff. The accounting conversion was initiated as a sub-contractor to Hagler-Bailey (Now PA) and completed under a separate contract. The work of Carana has been completed; no Carana personnel are currently in the country consequently no direct interviews of company employees were conducted. However, we are able to make general observations based on discussions with GOG energy sector officials, USAID and PA Consulting. We also considered how well these functions have contributed to the development of the Georgian energy sector.

Carana successfully converted the chart of accounts and conducted training of accountants at its assigned firms. These activities will pay off as IAS comes into greater use in the country as a whole. In retrospect it was optimistic to expect that changes could be successfully implemented in only one sector of the economy.

The work performed under the Nathan Associates task order was undertaken by their subcontractor Deloitte Touche. It consisted of accounting audits of five energy sector entities and was undertaken at the request of the EBRD. The Bank requires audited financial statements for their loans. The audits were completed and accepted by the EBRD. There were useful suggestions contained in these audit reports that might have been the basis of needed technical assistance if funds had been available for follow up.

United States Energy Association (USEA) is an organization representing a small group of US regulatory agencies and utilities. The assessment of USEA is based on a meeting with Barry K. Worthington, Executive Director, at USAID Headquarters in Washington, review of reports of their work provided by him and a meeting with George Kutateladze, the USEA representative in

Georgia. During meetings with officials in Georgia we discussed the impact of the USEA program on their work. In addition, the relationship of the USEA assignments to the overall energy sector work was discussed with both USAID and PA Consulting. Assessing the benefits of these exchanges is difficult. In many cases the long-term benefit greatly exceeds the immediate short-term benefit. USEA's activities need greater coordination work of PA Consultants. Very short-term exchanges put excessive resources into the logistics of the exchange rather than the learning process.

PA Consulting, Inc. has been the primary contractor for the energy sector reform work in Georgia. Its work has covered energy sector restructuring, regulatory reform and institutional strengthening, commercialization and privatization and energy conservation and DSM.

The basic restructuring was done prior to PA's work as a requirement of the World Bank. It consisted of unbundling the sector and forming joint stock companies. PA has reviewed this structure and recommended the recombining of transmission and dispatch as well as combining 65 small municipal utilities into approximately eight. PA also assisted in the formation of the Wholesale Electric Market.

PA basically wrote the Energy Law and the Law on Oil and Gas. They also have helped draft amendments to these laws. These laws established the two regulatory agencies that cover the energy sector. GNERC regulates the electric sector. PA assisted in the formation of the agency and helped prepared the regulations that apply to the sector. The State Agency for Regulation of Oil & Gas Resources of Georgia was established to regulate the oil and gas sector. PA has provided assistance including training to this agency. They wrote the regulations to apply to operations in this sector.

PA assisted the Georgian Government in the process of commercialization and privatization of the energy sector by preparing all necessary tender documents and advising them during negotiations and bid evaluations. For the non-privatized electric distribution companies, PA prepare RFP-s for management contracts rather than privatization. In the field of natural gas distribution the main effort was oriented toward Tbiligazzi. A team of advisors works directly with the Company with actually doing the company's work in preparing materials on metering, management and collection to prepare the company for privatization.

PA has developed an Energy Conservation Implementation Plan aiming to reduce the electric energy consumption by 25% over a 5-year period. Several Demonstration Projects have been implemented and more are scheduled for development. The overall strategy was been submitted and approved by USAID in April 2001. PA is also working to identify of projects for electricity and natural gas usage in different geographic regions of Georgia that have to be implemented using local Georgian Subcontractors. Three micro-hydro plants were identified to supply electricity to some villages.

Evaluation of USAID Energy Program

The work of the USAID contractors in the energy sector has been very successful, however it cannot be assumed that the energy sector in Georgia is ready to operate with a minimum of additional assistance. The work of the USAID consultants created the basic institutions and established the framework for restructuring the industry. Implementing these changes will take time; the end product will not be an exact clone of the U.S. system. Ongoing support will be required. The factors to be considered are:

- Time factor, it is naïve to assume that creating institutions does the job. With experience, the new institutions will do a better job.
- The restructuring model selected by USAID; unbundling with a market clearing process, probably is the most difficult to implement. Once the industry is unbundled, *all* the new components must work or the system fails. A key component is establishing a wholesale market for electricity, which acts as a clearing mechanism. It is currently one of the least successful components of the system.
- Institutional weaknesses still require major correction. The agencies that directly effect the market, dispatch, transmission and the Georgian Wholesale Electricity Market are among the weakest. Unfortunately these are key to make unbundling and market pricing work. The weakness in these areas is recognized by USAID and PA Consulting.

There are also specific institutional weaknesses that need correction. GNERC is the lead regulatory agency in the energy sector, yet its current commissioners appear to have a poor grasp of its role. There has been little need for sophisticated tariffs up to this point but with improved collections and general economic improvement, this will become an issue. The State Agency faces the problem of establishing its role and authority in the oil and gas sector. It's main challenge is the politically powerful Georgia Oil which is resisting giving up control of the sector. It will also face new responsibilities in the areas of pipelines and possibly refinery operations. It also will need to develop the capacity in the tariff area.

Proposed Directors for Future Work

The USAID program will need to continue to work with the most of the same institutions stressing the implementation of the programs that have been established. The expanded privatization of the sector should assist this activity although there is a need to gain support for the program within the privatized sector.

Ability to undertake sophisticated tariff methodology, particularly in the electric sector, will have greater importance in the future. Tariff issues also will be raised in the national gas system. This will require adoption of ISA accounting and training of the staff. Tariff methodology needs to begin now.

The oil and gas sector needs to have greater emphasis. This will be mainly in the areas of regulations regarding pipelines, oil and gas production and possibly refinery operations.

The energy conservation/DSM has shown great promise and needs to be contained. At the same time the industrial demand for energy needs to be promoted to create a more balanced energy sector. All of this requires additional training in management and operating practices. This should be concentrated on mid-level staff to provide a cadre of skilled administrators in the regulatory areas.

GEORGIA ENERGY SECTOR EVALUATION

INTRODUCTION

The activity of the team started on July 10, 2001 in Washington DC with the study of available documents and meetings with USAID, and continued in Tbilisi starting July 14, 2001.

The evaluation team was:

- ▶ Robert E. Batt, PhD., Team Leader
- ▶ William S. Pintz, Financial Expert and
- ▶ Daniel A. Mark, PhD., Energy/Power Engineer

The team contacted upon arrival the USAID representatives in Tbilisi, Peter Argo, Director, Energy and Environment Office USAID/Caucasus and Herb Emmrich CTO, Senior Energy Advisor USAID/Caucasus, who provided detailed information regarding USAID Energy Sector Programs and facilitated contacts with organizations and persons that were interviewed for this evaluation.

This report is to meet the requirements under AEP-I-00-00-00023-00, Task Order 806. This report has three main sections. Part 1 concentrates on the performance of the individual consultants. Part 2 is an evaluation of the integration of their work in meeting the USAID Strategic Objectives of the energy sector. Part 3 contains recommendations for future work.

PART 1: ENERGY SECTOR EVALUATION REPORT OF CONSULTANTS PERFORMANCE

The contractors evaluated in this report are PA Consulting Inc. (formerly Hagler Bailey), Nathan Associates, Carana Corporation, and United States Energy Associates (USEA). The period of the review was from 1998 to the present.

The work by Carana is complete. The Nathan Associates work was undertaken by their sub-contractor Deloitte-Touch; there is one potential assignment pending. These evaluations will present Carana Corporation, Nathan Associates, USEA and PA Consulting Group. The work of Carana and Nathan Associates covered accounting and financial management reform, USEA covered institutional strengthening and PA Consulting Inc. covered a wide range of tasks in the energy sector. The work of PA will be analyzed under the broad categories of restructuring the energy sector, commercialization and privatization of the sector, regulatory reform and institutional strengthening, energy conservation and DSM and other support activities.

CARANA CORPORATION

Carana Corporation converted the accounting systems of energy sector firms to International Accounting Standards (IAS) and conducted accounting training of accounting staff. The

accounting conversion was initiated as a sub-contractor to Hagler-Bailey (Now PA Consulting) and completed under a separate contract. The work of Carana has been completed; no Carana personnel are currently in the country consequently no direct interviews of company employees were conducted. However, we are able to make general observations based on discussions with GOG energy sector officials, USAID and PA Consulting. We also considered how well these functions have contributed to the development of the Georgian energy sector.

Prior to and immediately following Independence accounting records were maintained using socialist accounting principles. Under this system the primary function of accounting records was to determine tax liability rather than for financial analysis or management information. Since there was no western accounting tradition in the country, financial record keeping to IAS standards can be considered a relatively modern transplant in the Georgian energy sector. Carana was engaged by USAID to undertake accounting conversion and direct training of energy sector accountants in IAS procedures and to establish a procedural framework (e.g. charts of accounts) and training infrastructure for the transition to IAS accounting systems. This training was directed at five companies (The companies were: Electrogadatsema, Electrodismatch, Tbilresi, GIGC, Saktransgas).

In parallel with Carana's accounting conversion and training program, a Georgian law was passed which required that all companies convert to IAS standards by 2000 (optional conversion was encouraged in 1999). Apparently, support for the general accounting conversion in the country came from sources other than USAID. Enforcing overall conversion does not appear to be a high priority within Georgia, therefore assessing the success of the program within one sector is difficult.

Entities that have been privatized with Western ownership have converted to ISA standards. Indications are that most state owned companies are still using socialist accounting methodology. Based on audits conducted by Nathan/Deloitte in June/July 2000 none of the 5 companies had converted to IAS practice.¹ Thus, neither the Carana training nor the passage of a national law apparently was sufficient to bring about the introduction of IAS accounting standards in Georgia. In our interviews with Georgian energy companies we inquired about the current state of their conversion. Companies claimed that they currently were using IAS accounting procedures although no company actually said that they would be able to produce western style accounts for FY 2001. All companies said that the assistance provided by USAID was essential to the introduction of IAS systems.

One exception was Georgian Gas International Corporation (GIC), the domestic gas transmission company. They indicated that they are preparing year end financial statements to IAS standards and have a one year financial plan based on those accounts. They commented on the difficulty in developing even a one year plan in the face of the financial uncertainty of GIC. They understood that meaningful financial analysis could not be undertaken even with IAS accounts when their system was so underutilized and receivables were at such a high level. This response indicated a fairly sophisticated understanding of this financial process in western business.

¹ Nathan/Deloitte were engaged to provide audits for 1999 but their comments explicitly noted that as of the date of their report (e.g. June 30, 2000) there was little or no evidence of IAS accounting practices in the companies that they audited.

On the other hand there is some indication that IAS accounting may not be moving forward as quickly as suggested by the energy enterprises. For example, the Georgia National Energy Regulatory Commission (GNERC) stated that only about one third of the companies were in conformance with IAS standards.² GNERC further noted that the larger state companies seemed to have little interest in the accounting conversion process. Likewise, members of the PA Consulting who are in daily contact with the enterprises expressed doubt that the companies were in fact keeping IAS accounts. Thus, there is at least some uncertainty over the exact status of the conversion process.

Whatever the actual status of the conversion process, it is reasonably clear that few if any, energy sector companies are currently producing medium term strategic or financial plans based on accounting information. In some cases, this may be a function of the tremendous uncertainties facing the Georgian energy sector. For example, the Georgian Gas International Corporation apparently produces one year financial projections — from a system of IAS accounts — but maintains that longer term planning is not useful due to the ongoing state in the natural gas supply. Beyond GIC the state of both strategic and financial planning is fairly vague.

In retrospect USAID's goal in undertaking this work was, a) to facilitate introduction of western accounting and b) to encourage broader use of accounting data for management information and strategic planning purposes. Carana activities were directed at these goals. Unfortunately, while training can lay an essential foundation for IAS system it cannot insure that the systems are, in fact, introduced or optimally utilized. In other words, Caranas training was a necessary but not a "sufficient" condition to the establishment of IAS practice in the energy sector.

In assessing USAID's activities it is reasonable to ask how important the current state of financial accounting in Georgia may be for near term development of the energy sector. Our interviews suggest that the accounting system is probably not a major constraint to development at the current time. GNERC believes that it can adequately regulate electricity and natural gas distribution with the information that is currently available from the energy companies. Further, the charts of accounts established by Carana should make it possible to produce western approximations from the old accounting data where necessary. In addition, as privatization and management contracts expand in the energy sector, the use of IAS accounting will become much more common and sophisticated.³ Over the longer term, accounting conversion will be increasingly important insofar as it is an essential element in modern planning and management. It is almost impossible to envisage a modern energy sector in Georgia without a modern accounting system.

From all of this we believe that there is not an immediate priority for further accounting training. In fact, given the current institutional setting, there is no guarantee that further training will have the intended results. Rather, we believe that a preferable strategy is to induce accounting reform by creating internal pressures in the energy companies. While the ultimate pressure for reform is privatization and management contracts there may be other opportunities for inducing internal

² GNERC stated that out of 60 companies less than 20 had made any systematic attempt to prepare accounts using IAS standards. Those not changing are all small state owned companies.

³ While the lack of IAS accounting is no doubt a concern of potential investors and contract management there was no indication in our interviews that this was a critical development concern.

pressures. We will explore some of these opportunities in the context of the audits undertaken by Nathan/Deloitte Touche.

Conclusions: Carana successfully converted the chart of accounts and conducted training of accountants at its assigned firms. These activities will pay off as IAS comes into greater use in the country as a whole. In retrospect it was optimistic to expect that changes could be successfully implemented in only one sector of the economy.

NATHAN ASSOCIATES, INC.

The work performed under the Nathan Associates task order (TO #03) was undertaken by their subcontractor Deloitte Touche. It consisted of accounting audits of five energy sector entities and was undertaken at the request of the European Bank for Reconstruction and Development (EBRD). The Bank requires audited financial statements for their loans.

As part of its collaboration with the EBRD, USAID undertook financial audits of five energy companies in 2000⁴. The objective was to produce audited accounts for 1999 and to provide certain audibility improvements in order to increase the transparency and reduce future audit costs. These audited accounts were expected to make possible a substantial EBRD credit. The initial phase of the financial audit project (e.g. generation of the 1999 accounts) was completed in June 2000 and contains a number of detailed financial and operational observations. By December 2000, recommendations for audit improvements had been provided for four of the enterprises. These improvements included development of procedures for budgeting, accounts receivable, accounts payable, property, and reporting procedures. Training sessions for enterprise staff were provided in these areas.

While the financial information was a pre-requisite for donor lending, the data is of only marginal interest for the purposes of the current mission. On the other hand, the operational comments contained in a Management Letter of Submission provide useful insights into the organizational structure and weaknesses of the audited companies. Not surprisingly, the auditors made many common observations about the companies. Table 1 provides a synopsis of the audit findings for each company.

Of the thirty-seven operational or organizational comments contained in the audit reports Deloitte Touche made nearly identical comments about five company functions. These functions were:

- ▶ No or inadequate Management Information System (MIS)
- ▶ No Internal Audit Function
- ▶ No Clear Budgeting Procedures
- ▶ Lack of Written Accounting Policies
- ▶ No Sales or Credit Analysis

⁴ The companies were: Electrogadatsema, Electrodispatch, Tbilresi, GIGC, Saktransgas

In addition, identical comments were made for four of the five companies.⁵ Taken together this recommendation form a core of suggestions for follow-up activity. Some of these core suggestions were followed up in the second, "audibility improvements" phase of the project while other suggestions were not addressed.

Suggestions that were not addressed in the project included the need for a Management Information System, Internal Auditing, Strategic Planning and Information Technology. Clearly, these un-addressed issues have substantial organizational implications for the enterprises. All four topics are standard functions in Western companies of comparable size and, at least in the mind of the Deloitte Touche auditors, are necessary for the adequate functioning of the Georgian energy enterprises. We will return to the appropriateness of further training in this area in the second section of this report.

Clearly, even expanded audit reports such as those prepared by Deloitte are of limited usefulness unless followed up by regular annual audits. The situation in Georgia is complicated since local auditing firms may have little international credibility, and may be tainted by the pervasive corruption in the energy sector. This suggests that follow-up audits will either need to use expensive international accounting firms or that some method will have to be found to increase confidence in the independence of local accounting firms. There may be no direct answer to this dilemma but over the medium term, it may be possible to induce international accounting firms to establish joint ventures with the Georgian accounting firms. Exactly what further role USAID might play in facilitating such combinations is unclear.

Overall, we found the Deloitte audits and audit accountability recommendations thorough and professional. Without undertaking our own audit, it is obviously impossible to validate the conclusions of the reports. However, they appear to be consistent with our expectations and we have no reason to question the findings. Moreover, the operational recommendations provide a useful measure of the weaknesses of the Georgian energy companies.

Conclusions: The work of the subcontractor Deloitte Touche was to provide financial audits of five energy firms in order to meet the requirements of the EBRD. The audits were completed and accepted by the EBRD. There was useful suggestions contained in these audit reports that might have been the basis of needed technical assistance if funds had been available for follow up.

⁵ These comments involved the lack of a Strategic Plan, Non-compliance with IAS standards, No Information Technology Strategy, No Analysis of Operational Expenses.

TABLE 1
Comparison of Audit Findings

	Electrogadatsema	Electrodispatch	Electrogadatsema	Tbilsresi	GIGC	Saktransgas
1. Inadequate Organizational Structure	x	x		x		
2. Transmission Losses	x					
3. Management Information	x	x	x	x	x	x
4. No Internal Audit Function	x	x	x	x	x	x
5. No Strategic Planning	x	x	x	x	x	
6. No IT Strategic Plan	x		x	x	x	x
7. Budgeting Procedures	x	x	x	x	x	x
8. Information flow between Head & Branch Offices	x	x	x		x	
9. Lack of Accounting Policies	x	x	x	x	x	
10. Not using IAS standards	x	x	x	x	x	
11. Poor Fixed Asset accounting	x		x		x	
12. Receivables	x					
13. No Sales/credit Analysis	x	x	x	x	x	x
14. No standardized policy on Cash receipts	x					
15. No central purchasing	x			x		
16. No interchangeability of Accounting personnel	x	x	x	x		x
17. No Analysis of Operational expenses	x	x	x	x	x	
18. No Financial Control over Branches		x				x
19. Branch Account done Manually		x				
20. Inadequate qualifications and experience of Accounting Staff		x				
21. Lack of timely posting of Transactions		x				
22. Accounting Process is not automated		x				
23. Technical deficiencies in Accounting System		x				
24. No consolidation of financial Statements		x			x	
25. Tax Liability		x	x	x		x
26. No Human Resources Strategy and Training Plan		x				
27. No costing System			x	x		
28. Many non productive social assets			x			
29. Construction in projects suspended			x			
30. Inadequate Inventory Management system			x			
31. Use of Multiple Banks			x			
33. Inappropriate Depreciation Rates				x		
34. No verification of Assets				x	x	
35. Revaluation of Assets-Zero value assets still in use				x		
36. Obsolete Stocks				x		
37. Credit Balances in Debtor Ledger				x		

UNITED STATES ENERGY ASSOCIATION

United States Energy Association (USEA) is an organization representing a small group of U.S. regulatory agencies and utilities. Members include Michigan PSC, Tennessee Valley Authority, Oklahoma Corporate Commission, Consumers Energy of Michigan and others. Their activities concentrate on regulatory and operational issues in the electric power and oil and gas industries.

The assessment of USEA is based on a meeting with Barry K. Worthington, Executive Director, at USAID Headquarters in Washington, review of reports of their work provided by him and a meeting with George Kutateladze, the USEA representative in Georgia. During meetings with officials in Georgia we discussed the impact of the USEA program on their work. In addition the relationship of the USEA assignments to the overall energy sector work was discussed with both USAID and PA Consulting.

The USEA approach is to have exchange programs of executives and technical staff between the two countries. They also have sponsored Georgian industry professionals at conferences and short courses in the US and other locations. From 1998 to May of this year they have conducted 21 separate activities.

Assessing the benefits of these exchanges is difficult. In many cases the long-term benefit greatly exceeds the immediate short-term benefit. The individual participant may not fully appreciate or comprehend the institutions he is being exposed to. With development of the Georgian institutions, this importance of the comparison with the US institutions will grow.

Uniformly, responses from the Georgians who had participated in these programs were favorable. However, this could be the expected response for an expense paid trip to the United States. Evaluating the benefits of this program is more difficult. Two specific observations can be cited:

While meeting with the management of GIC (the domestic gas transmission company), the president commented on his visit to the gas pipeline dispatch center of Enron in Houston. Noting the smooth operation that the sophisticated SCADA system provided he commented "This is how I want *my* pipeline to operate." It can also be noted that the meeting was conducted in English since the four executives had been through English language training sponsored by USAID.

The team also had the opportunity to attend a public meeting of GNERC on requiring AES to guarantee electric power on a 24-hour basis in Tbilisi this winter. Since no utility can give that guarantee, the basic question should have been analyzed by commission staff and a more reasonable position presented at the public meeting. Instead, the meeting was packed with representatives of consumer groups loudly voicing their support for this issue. There was little evidence of any formal procedure and it was not apparent if minutes were being kept.

Conclusions: USEA's activities need greater coordination with the work of PA Consultants. Very short-term exchanges put excessive resources into the logistics of the exchange rather than

the learning process. Judicious use of the program can contribute to the development of energy sector institutions but careful cost-benefit analysis is needed for each assignment.

PA CONSULTING, INC.

The evaluation was made based on personal interviews, meetings and review of latest reports.

PA's office in Tbilisi is well staffed with expatriate and qualified local personnel. They are involved in the multiple tasks of the USAID/Caucasus- Statement of Work: Georgia Electricity and Natural Gas Sector Reform Program. The Scope Of Work (SOW) addresses USAID Strategic Objective 1.5 "A more Economically Efficient and Environmentally Sustainable Energy Sector and its Intermediate Results (IR) 1.5.1- Increase Private Sector Participation in the Energy Sector; IR 1.5.2- A Legal and Regulatory Environment Conductive to Private Sector Investment in Energy Sector; IR 1.5.3- Environmentally Sound Laws, Regulations are Adopted and Implemented in Energy Sector; IR 1.5.4 – Increased Efficiency in the Energy Sector.

The work of PA Consulting that is being evaluated has mainly been done under T.O. 15 and T.O. 820, the currently active Task Orders. This work is a continuation of work initiated under earlier Task Orders including T.O.14. The work has been done under many sub-tasks. For the purpose of this report, the analysis will be handled under the broad functional categories of:

- ▶ Energy sector restructuring
- ▶ Regulatory reform and institutional strengthening
- ▶ Commercialization and privatization
- ▶ Energy conservation and DSM

Even with these broad categories some activities fall within more than one functional area.

ENERGY SECTOR RESTRUCTURING

Prior to the start of PA Consulting's work in Georgia, the World Bank had required the country to "unbundle" the electric sector as a requirement for rehabilitation loans. This resulted in separate generation, transmission, dispatch and distribution companies. Each hydro plant and thermal generating plant were separate joint stock companies and distribution was broken up into sixty-six municipal companies. A separate joint stock company was created for dispatch.

Under the current contract, PA has reviewed this structure and, based on their recommendations, is assisting in recombining the dispatch with transmission in one company. In the distribution area, only Talasi was privatized. The remaining sixty-five utilities are too small to form viable companies for privatization. A process of rebundeling them into larger regional utilities started in April 2000. At present time this activity is in progress with a target of approximately eight companies. PA is hoping to find buyers for at least two of these new firms and plans on management firms to take over the remaining distribution companies.

The Union Georgia Wholesale Electricity Market (WEM) was established with the aid of USAID in 1999. PA provided assistance and developed the necessary legal tools for its proper

operation as a transparent company. Through PA, USAID helped furnish the offices and procure computers and other assistance. Nevertheless, the implementation of these tools is slow and the WEM needs ongoing support to continue to operate correctly. This is in partly due to the management of the Wholesale Electricity Market that opposes (not openly) the proposed changes. Moreover, because of the low collection of electricity bills, it often is difficult to pay the generators. This situation reflects the personal interests of the management and, corruption of the Georgian companies who are part of the WEM. USAID and PA continue to pursue the issue.

The natural gas sector, relying primarily on imported Russian gas, is tied into many municipal utilities. The domestic high-pressure gas transmission is handled by GIC. Another company, GOIC, was formed to be the government representative in negotiations with the consortium building the Main Export Pipeline (MEP) from Azerbaijan to Turkey. Based on PA analysis, the responsibility for negotiations regarding the gas transit pipeline to be built in the same right-of-way was transferred to GOIC from GIC.

ENERGY REGULATION AND INSTITUTIONAL STRENGTHENING

PA basically wrote the Energy Law and the Law on Oil and Gas. They also have helped draft amendments to these laws. These laws established the two regulatory agencies that cover the energy sector. GNERC regulates the electric sector. PA assisted in the formation of the agency and helped prepared the regulations that apply to the sector. They are currently working on Grid Codes for GNERC.

The State Agency for Regulation of Oil & Gas Resources of Georgia (State Agency) was established to regulate the oil and gas sector. PA has provided assistance including training to this agency. They wrote the regulations to apply to operations in this sector. They are being translated into Georgian.

Neither regulatory agency can be considered entirely satisfactory. With GNERC the problem appears to lie with the senior officials who do not seem fully to support the concept of an open regulatory agency. The state agency has in part replaced the role of the Georgia Oil Company which has strong political power. The agency appears will to perform its role but may be too weak. The recent increase on oil and gas activity by outsiders may test the relative power of these two factions.

COMMERCIALIZATION AND PRIVATIZATION

PA assisted the Georgian Government in the process of commercialization and privatization of the energy sector by preparing all necessary tender documents and advising them during negotiations and bid evaluations.

At present, realizing the difficulties in finding buyers for the distribution companies, PA prepared for them RFP-s for management contracts rather than privatization. The documents were submitted to the Ministry of Electricity and Fuel for implementation.

In the field of Natural Gas Distribution the main effort was oriented toward Tbiligazzi. A team of advisors works directly with the Company. A fair statement would be that PA actually does the company's work in preparing materials on metering, management and collection to prepare the company for privatization. There were problems with large quantities of diverted gas, unrecorded customers and other irregularities. Recently the owner and operator companies were united in a single company. As part of its assistance, PA bought and installed flow meters in key points of the pipe network. As a result of this work the diverted gas quantities dropped from 12% to 3-3.2%.

The restructuring permitted the Government to issue a tender for privatization (prepared by PA). An Israeli Company – Tahal in collaboration with the two US firms were negotiating with the Georgian authorities during our stay. PA had a decisive role assisting GOG in the negotiations by direct participation in the meetings (part of them took place in PA offices). Even though PA's contribution to the commercialization and privatization is substantial, the actual process of implementation is slower than it was hoped.

ENERGY CONSERVATION AND DSM

PA has developed an Energy Conservation Implementation Plan aiming to reduce the electric energy consumption by 25% over a 5-year period. Several Demonstration Projects have been implemented and more are scheduled for development. The overall strategy was been submitted and approved by USAID in April 2001. The subtask is on schedule. PA is also working to identify of projects for electricity and natural gas usage in different geographic regions of Georgia that have to be implemented using local Georgian Subcontractors. Three micro-hydro plants were identified to supply electricity to some villages. Work on these projects started. This subtask will continue.

PA is implementing six regional metering, collection and commercialization projects in each contract year. Up to date, this task is on schedule. The main emphasis is on Rustavi and Nadjara area. Rustavi is a continuation of the task order 15 on metering. PA purchased ABB meters from Russia, tested them, and has nearly completed installation in many areas. They also have provided computers for billing purposes. The Nadjara company started the metering effort on its own but ran out of money and asked USAID for help. USAID directed PA to provide materials but the local company undertakes the work. PA also has proposed alternative methods of achieving collections and billing improvements. One of suggested methods is to install prepaid metering. The customer prepays a given amount of kWh and the meter automatically interrupts the service when it runs out of money. This method has a dual effect. It increases the collections by having assured the payment of the prepaid kWh and fosters conservation since the customer knows that he has to renew its payment and will monitor his consumption of electricity more efficiently.

Conclusions: PA Consulting has been asked to perform a wide range of activities calling for an equally wide range of functional skills. On its technical merits, most of their work appears to be outstanding. Beyond the "letter" of their assignments, with the support of the USAID Mission, an important function has been to prod different components within Georgia to work together to

achieve goals for the common good of the country. The implementation has been weak in a number of areas but not due to any lack of effort by the staff of PA Consulting.

OVERALL EVALUATION

Since PA Consultants undertook the preponderance of the work reviewed, the comments made as the conclusion to their evaluation hold as an overall assessment of the energy sector work in Georgia. All four consulting firms completed their assignments to a high standard. The cultural and political conditions in Georgia, not the least is the pervasive level of corruption, makes operating in the country difficult. Shortfalls in meeting implementation goals can be partly attributed to those factors. However in some areas the targets set by USAID were probably too optimistic. The goals can be met but will require a longer timeframe.

PART 2: EVALUATION OF USAID ENERGY PROGRAM

INTRODUCTION

This part of the report concentrates on the accomplishments of the work to date with regard to creating viable institutions that can perform their assigned duties with a minimum of outside assistance and meeting the objectives of the USAID Strategic Plan. The analysis and evaluation of the activity of the USAID Energy Sector's activity cannot be separated from the larger scope of United States strategy in the Caucasus, the U.S. Foreign Policy Interest and the domestic circumstances and constraints of Georgia.

As stated in the Strategic Plan for the period of 2000-2003, the two primary objectives in Georgia are:

- (1) the requirement for politically and economically stable Caucasus region at a geographic crossroads that border states with potential volatility, such as Russia and Iran; and
- (2) The vital position of Georgia as a Caucasus transit country of oil and gas for the U.S. and the West.

The energy sector is an important part of the Georgian economy. Its rehabilitation and growth contributes to the improvement of the general well being of the population and economic situation in the country.

USAID's Georgia Electricity and Natural Gas Sector Reform Program includes the following main sections:

- Increase Private Sector Participation in the Energy Sector,
- A Legal and Regulatory Environment Conducive to Private Sector Investment in the Energy Sector,
- Environmentally Sound Laws, Regulations are Adopted and Implemented in the Energy Sector and
- Increased Efficiency in the Energy Sector.

Most of these tasks are not new. They are the continuation of previous programs, or new tasks based on the foundation built by earlier programs.

IMPORTANCE OF THE ENERGY SECTOR'S ACTIVITY IN ACCOMPLISHING THE STRATEGIC PLAN

Given the considerable constraints of operating in Georgia the energy sector program has been successful. It has been successful both in development terms and in serving the strategic and political interests of the US. The program's aggressive interventions in the areas of legal development, regulatory reform, privatization, and institutional strengthening have been effective in laying out the foundation for a reorientation of the Georgian energy sector from state ownership and toward Western style energy institutions. During our visit, the program was praised by Georgian executives and technocrats including many who stood to significantly lose influence as a result of USAID initiated reforms.

The energy sector program has laid out a broad legal and institutional framework. This framework is now entering a critical implementation phase. To be successful the institutional framework must be staffed with a new cadre of energy analysts and managers whose values and abilities are suited to a competitive market economy. Without these new managers the new institutions will exist in form but not substance. Like all new institutions there is no decision making experience or institutional memory. Currently much of the institutional experience for these new organizations is supplied by the USAID through its contractors. However, to be self-sustaining Georgian institutions must accumulate their own operational experience. This necessarily takes time. Neither staffing nor the accumulation of institutional experience will come easily, quickly, or cheaply. Until these essential ingredients are available the new reforms and organizations will remain fragile and vulnerable. All of this suggests that it is imperative that USAID continue its policy support to the Georgian energy sector. It is difficult to estimate how long continuing support may be necessary but we believe that at least four to five years of support for implementation of the institutional reforms will be required.

After the fairly "glowing" evaluation of the work of the USAID contractors in the energy sector, it might be assumed that the energy sector in Georgia is ready to operate with a minimum of additional assistance. The work of the USAID consultants created the basic institutions and established the framework for restructuring the industry. Implementing these changes will take time; the end product will not be an exact clone of the US system.

Ongoing support will be required. The factors to be considered are:

- Time factor, it is naïve to assume that creating institutions does the job. Personnel at both the director and staff levels need to be recruited, given training and then develop experience. Time is also needed to fine-tune the legislation, regulations and regulatory procedures to meet the specific needs of the political and economic environment in Georgia.
- The restructuring model selected by USAID unbundling with a market clearing process probably is the most difficult to implement. Once the industry is unbundled, *all* the new components must work or the system fails. A key component is establishing a wholesale

market for electricity, which acts as a clearing mechanism. It is currently one of the least successful components of the system. The theoretical model for this restructuring relies on a competitive market to establish the price of electric power. The natural monopoly segments of the system, the transmission network and local distribution systems, are to be subject to tariff regulation. However, to equalize the cost differential between hydro and thermal power, an adjustment formula is used in the market function. The current financial and physical state of the entities in the industry raises serious questions as to the actual level of competition in the market.

- Institutional weaknesses still require major correction. The agencies that directly effect the market, dispatch, transmission and the Georgian Wholesale Electricity Market are among the weakest. Unfortunately these are key to make unbundling and market pricing work. The weaknesses in these areas is recognized by USAID and PA Consulting. Plans are to recombine dispatch and transmission and place them under a management contract. With a strong dispatch and transmission operation, the wholesale market could cut off local utilities for nonpayment. Since a major part of their problem is poor collections, serious efforts would then be made by the utilities to collect from customers or shut them off. Eventually a viable electric system would develop. However, until these reforms are in place and operating, no meaningful evaluation of the new structure can be made.

SPECIFIC INSTITUTIONAL WEAKNESS

General institutional weaknesses have been described in earlier sections of this report. With time and a general improvement in the Georgian economy, many of the general weakness will be corrected. There are specific weaknesses in that remain within institutions that have been assisted by USAID and these weaknesses will become more prominent as the sector becomes viable. Furthermore, there are problems with institutions that have not been direct recipients of USAID assistance but impact on the performance of the energy sector. Here are key ones:

- **GNERC** is destined to be a lead agency in the energy sector. Its current commissioners appear to have a poor grasp of the agency's responsibilities. While collections in the electric power sector remain in the 30% range this is only moderately important. As the sector becomes viable, GNERC will face fairly sophisticated issues regarding terms of service and tariff determination. These issues will require strength in both technical and political areas. Cost of service criteria will need to be established which requires a functioning western accounting system. The staff of GNERC will need the competence to match the utilities they regulate. It must be remembered the major utility under its jurisdiction is Telasi, which has the support of its U.S. owner.

The wholesale market has a tariff adjustment to reflect the cost differential of hydro versus thermal power. With the current inadequacies in the payment mechanism in the wholesale market, errors in this adjustment formula can be overlooked. If the proposed reforms in this market are implemented and successful, bias in this adjustment becomes very relevant. A similar problem would develop if the current domestic natural gas exploration is successful.

- **State Agency for Regulation of Oil and Gas Resources of Georgia (State Agency)** faces the problem of establishing its role in the energy sector. At this time its role is mainly regulation of the operating practices (environment, safety, and conservation) and contract provisions of upstream domestic oil and gas industry. Many of its regulations have just been written with the aid of PA Consulting and have limited application. The State Agency is basically taking over the role of the National Oil Company "Georgian Oil". Georgian Oil is politically a very strong organization. Furthermore, western oil companies (including US) prefer working with Georgian Oil rather than a new regulatory agency they do not know.

The State Agency also may face expanded responsibilities in the near future. An international gas transit pipeline will begin construction and is scheduled to operate in a few years. Although this pipeline is governed by an agreement with the government, pipeline operating regulations need to be developed and the State Agency should be responsible for their enforcement. There may also be sales of gas within Georgia from this pipeline that could require some type of regulation. Later an international oil transit pipeline is scheduled to be built. It would be under similar terms as the gas pipeline. The State Agency should enforce operating regulations.

If the current exploration activities for both oil and gas were successful, added responsibilities would be placed on the State Agency. The sale and privatization of Tbiligazzi would require tariff regulation of gas distribution. This also could be an added responsibility of the State Agency that would need assistance in its implementation.

Other institutions have not received direct assistance from USAID but play an important role in the success of reform of the energy sector. Their performance and actions must also be considered in future work of USAID:

- **AES**, the U.S. based energy firm owns Gardabani thermal plant units 9 and 10 and Telasi Distribution Company. Its performance since acquiring these assets has been disappointing, particularly with regard to Telasi. AES initially did not send distribution specialists to oversee Telasi and did not follow the successful model developed by PA Consulting for remetering and collections. Consequently, collections and reliability are below expectations. AES has rehabilitated the power plant and its reliability meets international standards.

Improved performance by AES would bring a significant portion of the country's electric system up to acceptable levels and would provide an example for other operations. It should be noted that AES is the major loser from the problems of dispatch/transmission and the wholesale market. It would prefer to be a vertically integrated utility.

- **Georgian Oil** is an entrenched institution with strong political power. It does not want to relinquish this power to the State Agency. It is considered corrupt, i.e. money that should go to GOG "disappears". Georgian Oil is technically competent and has worked well in a support role to Western oil companies operating in Georgia. It will continue to resist reform but it is a strong institution that probably can not be replaced.

- **Western oil companies** including US based firms generally have not supported reforms in the petroleum sector. They have had a satisfactory relationship with Georgian Oil and prefer not having a new regulatory agency in place.
- **The multinational lenders** (World Bank and EBRD) are playing an important role in rehabilitating the energy sector infrastructure but their mode of operation impedes their success. Georgia had a good energy infrastructure and the technical personnel to maintain it. The lack of funds resulted in deterioration of the system. Significant improvement could be made quickly by providing loans to purchase replacement parts from Russia, Ukraine or other FSU source and having local contractors perform the work. However, these agencies take a long time (three years seems normal) to fund projects and they tend to prefer large capital projects rather than local rehabilitation projects.

ACCOMPLISHMENTS OF THE GEORGIA ENERGY PROGRAM

- USAID has worked in close cooperation with the World Bank, EBRD and other donors to help the Georgian Government in the restructuring of the electricity and natural gas industry. It helped to unbundle and privatize the generation/supply, transmission, and dispatch and distribution assets into joint stock companies in order to facilitate privatization. This program continues.
- After the privatization of Telasi Distribution Company, the Gardabani thermal power plant's unit 9 and 10, the Khamari I and II hydroelectric plants and the Kakethi region electric distribution system, USAID was involved in the consolidation of the 65 regional utility networks into 8 larger distribution networks. It is hoped that two of these larger distribution systems will be more attractive for privatization. Those entities not privatized will probably be turned over to a foreign management contract.
- In parallel with the consolidation of distribution companies, Electrical Dispatch and Transmission are now in the process of consolidation under a foreign management contractor. USAID's prime contractor for this work is the PA Consulting Inc.. PA has prepared the necessary documents for a management contract and is assisting the GOG in the negotiations with a Spanish firm (Iberitola).
- The increase in private sector participation in the energy sector is closely related to implementation of a legal framework for regulation. Without this legal framework, privatization of the energy sector cannot take place. USAID, through its contractors, has provided extensive legal and regulatory assistance to the Georgian Government. The laws establishing the Georgian National Energy Regulatory Commission (GNERC), which regulates the electric power sector, the State Agency for Regulation of Oil & Gas Resources of Georgia and the Georgian Wholesale Electricity Market, were adopted by the GOG under the policy guidance of USAID. This included rules and regulations necessary for operation of transparent energy markets and organizations.

- The energy program has initiated an aggressive program designed to increase the efficient use of energy. This program has been undertaken through a series demonstration projects. These projects focus on simple methods of energy conservation that are available to the general population or to selected industrial energy users. A current project in Rustavi promotes better insulation of buildings and the caulking of fixing windows and doors to reduce residential heat losses. Other demonstration examples include an energy efficiency audit at a public school and a fuel conversion insulation and florescent lighting project at an apartment building. Payback in energy savings of the demonstration project is very short.
- Demonstration projects have been well received by the population and contribute substantially to the visibility of USAID's help to the general population. During our visit to one of the demonstration projects we received only positive feedback and praise for the help given by USAID.

EVALUATION OF PAST WORK

Technical Framework

1. Most recent statistical data published by the Government shows that the foreign debt of Georgia is over \$2 billion. This debt burden has direct implications for the energy sector where production of electrical energy dropped 7% last year.

Georgia's electrical power production before the break up of the Soviet Union was approximately 5,200 MW and the country was a substantial exporter of electricity. In July 2001 the total daily electrical power consumption was approximately 800 MW. Much of this capacity is from hydroelectric plants. A large number of hydro power plants of medium capacity are not in operation due to either inoperable equipment (turbines and generators) or structural problems (collapse of water tunnel, dam integrity). In addition to hydroelectric plants there is a total thermal capacity of the Gardabani and Mkvari power plants of 1050 MW (maximum power delivered last winter was often less more than 500MW). To save imported fuel this (thermal) capacity is not in service when hydroelectric capacity is available to cover the summer load.

2. Georgia has three possible sources of electrical power at its disposition: operational hydropower, operational thermal powerplants and imported electrical power. The hydro power plants that are at present in operation are able to cover the need of electrical power of the country, as long as they have sufficient water. Based on historical data the hydro power plants cover summer electrical demand with some excess power for export. The functioning thermal power plants presently run only in winter time and can completely cover the electrical needs of the country in winter- if they have fuel. Imported electricity is available from Russia if the foreign currency to pay for it is available. It should be clear from this description that the country is vulnerable to energy shortages when water resources run out. (Usually this occurs by November or December as a function of low rainfall and poor management of the reservoirs of the plants)

The following scenarios are possible:

- AES, due either to accidental outage of its units or lack of fuel or simply by breach of contract, does not supply the needed electrical power to Georgia. Since the State owned plant cannot supply sufficient power to cover winter needs there will be either forced blackouts or the country will be forced to import power from Russia and/or Armenia.
- The state-owned plant has repeated outages because of lack of fuel, breakdown of equipment and other causes (e.g., strike of workers for non payment of wages). Whatever the causes, the consequences are the same.

To insure a stable electrical power supply during the winter the Georgian electricity system has to make technical and financial provision for the following precautionary measures:

- Insure through firm contractual obligations the availability of fuel for the thermal power plants.
- Insure the necessary funds for maintenance and operation of the state owned thermal power plant.
- Review the contractual obligations of AES for delivering power, taking all precautionary measures, including insurance of payment of electricity to avoid interruption of power for non payment.
- Negotiate with Russia and/or Armenia a standby contract for delivery of emergency power.

Economic Framework

The USAID energy program has been undertaken in a nearly bankrupt economy. Not surprisingly, various energy enterprises are badly run down and their staffs are demoralized. In recent years international credits have succeeded in rehabilitating various pieces of the energy infrastructure. Currently, the overall energy system in Georgia is in serviceable, if relatively poor, condition. Paralleling the deteriorating capital base in the energy industries is a deteriorating and antiquated management system. In these circumstances USAID (together with other international donors) has correctly advocated privatization of the basic energy industries. Where privatization has not proved possible, management contracts are being encouraged.

The privatization of the energy sector to foreign investors ultimately rests on the assumption that, over the long term, sufficient profit exists to attract international firms. In turn this assumption is based on the premise that Georgian energy consumers have the ability to pay for the energy services that they consume. During our mission we have not been able to unequivocally confirm this latter assumption. However, there is some evidence⁶ to suggest that-without the substantial drain of corruption, commercial viability of at least some energy activities is possible. Regrettably, corruption is so pervasive and energy reliability so poor that the true ability-to-pay of energy consumers is hard to determine.

⁶ Such as the high bill payment rates in the USAID metering/collection demonstration areas like Rustavi and the substantial reduction of losses in the gas and electricity transmission systems.

Since the collection of energy charges is at the foundation of creating a sustainable energy sector it is worthwhile considering this issue somewhat further. The sustainable ability-to-pay question needs to be addressed from the perspectives of the residential, industrial and export markets. The most obvious and daunting challenge for reform is to change the 'culture of corruption' which pervades all levels of the energy distribution system. This problem is particularly acute for residential electricity sales. Even privatized companies like AES Tablisi openly acknowledge the existence of large, but unmeasured, revenue losses from illegal connections and diverted collections. While large-scale management corruption may be less of a problem in privatized companies this ongoing revenue drain at the grass roots level can mean the difference between profitable and unprofitable operations.

The USAID metering/collection projects have clearly demonstrated that modest capital investments (for metering) coupled with changes to the billing and revenue collection systems can achieve dramatic increases in residential revenue collection. Further, the early experience of these demonstration projects is promising in that they suggest a financial ability and willingness to pay for energy services. Finally, the metering/billing demonstration projects have had the side benefit of reducing household electrical consumption by an average of 35%.⁷ Interestingly, other distribution utilities have not been particularly anxious to follow the example of the USAID demonstration projects. This reluctance has been variously attributed to a number of factors including corrupt management, lack of capital for meters, or simple resistance to change.

At the other end of the collection problem are relatively large industrial consumers of energy. A substantial fraction of these large consumers are government agencies such as hospitals, railways and municipal water systems that have poor payment records. While there are significant budgetary constraints on some of these government agencies the fundamental problem may lie in historic attitudes toward energy services as a free input to public services. Perhaps the only way to change this mentality is through the shock effect of actually cutting off the electrical supply to some of these services. Whether there is a political will to take such dramatic action remains to be seen.

It is clear that the Georgian industrial sector was severely undermined by the collapse of the integrated economic relationships of the old Soviet system. While many industries that operated under the old system may not be commercially viable in a private economy, other industries may have the potential for revitalization and reorganization.⁸ Major industries are particularly attractive to energy suppliers for both technical (bulk supply) and revenue collection reasons. As a consequence, every attempt should be made to assist private energy intensive industries to improve their competitiveness through increased energy efficiency. USAID may have an expanded role to play in this area.

A striking feature of the Georgian electrical system is the large amount of underutilized generating capacity. Since a substantial portion (but certainly not all!) of this capacity is seasonal there is a clear opportunity for electricity exports to paying customers in neighboring countries. Turkey is usually cited as a primary export market for Georgian electrical exports. The

⁷ Once consumers recognize that they will pay for the electricity which they use they tend to substantially reduce their consumption.

⁸ Ironically, some of these industries may be suppliers of equipment to the energy sector. Examples include electrical meters and breakers and oil drilling pipe.

economics of electrical exports from idle Georgian generating capacity are straightforward and revolve around a more productive use of capital assets. There is little mystery here, although the financial and organizational skills necessary to increase profitable power exports are substantial and should not be underestimated. If a significant fraction of idle generating capacity could be converted to revenue generating exports, the power system would enjoy greatly improved financial stability and profits.

From the foregoing there appears to be hope that future years will see improvement in the collection of energy revenues. Institutional reform and privatization will be important elements in this transition but other factors will also need to be considered. For example, there will need to be a greater emphasis on strategic and "perspective" planning at both the Ministry and enterprise levels.⁹ During our discussions, strategic planning was seldom if ever mentioned by the enterprise managers and it is fairly clear that the Ministry has very limited capacity.¹⁰ While the enormous uncertainties of month-to-month energy supply/demand in Georgia may make long term financial planning of limited value, there is every reason to believe that strategic planning would help energy managers and government executives to identify key long-term policy parameters. At the enterprise level we feel that, in addition to strategic planning, there needs to be greater attention to detailed engineering planning of upcoming projects and construction scheduling.¹¹

Taken together these factors suggest that three primary factors will determine the future of Georgia's energy sector. These inter-dependent factors will involve:

- Emergence of a new cadre of energy managers schooled in Western techniques and competitive market principles,
- Selective investments in energy infrastructure and energy efficiency
- Generation of revenues from the sale of energy services which are adequate to maintain and expand the energy sector and to achieve acceptable levels of service reliability.

STATUS OF WORK IN PROGRESS. WHAT WAS ACCOMPLISHED AND DOES NOT REQUIRE FURTHER EFFORT AND WHAT ACTIVITIES HAVE TO CONTINUE OR EXPAND

Much of the legal drafting required to establish the essential regulatory agencies has now been completed. While it may be necessary to revisit some of the initial legislation emphasis should now clearly be on implementing rules, regulations and procedures. To the degree that these regulations and procedures can be borrowed from elsewhere the actual drafting probably is not a major task. On the other hand, to insure that implementing rules and regulations are appropriate to Georgia could be challenging. The experience thus far with implementing regulations seems to have been that consensus seeking among stakeholders is a sometimes difficult and time

⁹ In their June 2000 audits of five major energy sector companies Deloitte Touche noted that no company had a strategic planning function or unit.

¹⁰ For example the least-cost generating model prepared by PA consultants apparently received very little attention in the Ministry.

¹¹ Apparently, in the vacuum following the demise of the "Central Planning" of the Soviet era many necessary planning functions/organizations were abandoned.

consuming task. Moreover, as experience is gained, regulations and regulatory procedures likely will have to undergo revision.

Energy development inevitably raises substantial environmental issues. The environmental laws of the country (as they pertain to energy activities) are in an early stage of development. USAID should help in the establishment of sound laws to protect the environment. This work has been started through USAID's contractor, PA Consulting and needs to be extended as the energy sector develops.

USAID's energy sector program might be of assistance in the preparation of laws and regulations including pollutant standards. The energy program might also assist in designing enforcement programs and transitional implementation procedures. Clearly each energy form has its own special environmental considerations. Environmental regulation of electrical power needs to address the issue of air and heat pollution from thermal power plant(s), limits of electric and magnetic field intensity, disposal of transformer oil and other lubricants, disposal of lead from old underground cables and other issues. The gas and oil issues should address the environmental impact of pipeline construction and pipelines leaks and spills during operation, the emissions at the refineries and the distribution of fuel and lubricants and the drilling on and offshore for oil or gas. This work will take at least 5 years until it is implemented.

Assistance to regulatory operations could involve a wide range of issues. For example, we believe that substantial ongoing support will be necessary to deal with unanticipated problems that may emerge with the Distribution and Transmission/ Dispatch management contractors. Since it is likely that the professional managers who will take over these operations will not be familiar with American regulatory practice there may well be new regulatory perspectives which require adjustment and accommodation. For oil and gas regulation the struggle between the Oil And Gas Regulatory Agency and the Georgian Oil Company will need policy attention. This problem may be particularly acute since private oil exploration companies now active in Georgia seem inclined to oppose public regulation and to support the national oil company. It also seems likely that AES's inclination to become a self-contained and fully integrated energy enclave¹² in Georgia may run counter to the philosophy of unbundling energy services that has been the backbone of many regulatory reforms.

While the Energy Efficiency Demonstration Program for residential consumers is likely to mature in the next year or two a new industrial initiative will be needed. In addition it seems likely that a period of operational trial-and-error will be necessary to fine tune an Energy Service Company (ESCO) model for Georgian conditions. Overall, we would anticipate a substantial expansion of USAID sponsored energy efficiency work over the next three to five years.

It is fairly clear that international energy developments will require greater USAID policy support than has hitherto been the case. The most obvious example will be construction, environmental and right of way issues associated with the construction of the transit oil and gas pipelines. In addition, expanded electrical transmission links with Turkey and further integration

¹² AES staff and others have indicated that the companies Georgian strategy is to have an ownership interest in domestic natural gas supplies and pipelines which is sufficient to power the Garabani thermal station. Power from this station would then be used to supply the Talasi distribution system and, as appropriate, export energy to Turkey.

of Georgia's power grid with neighboring states will need both technical and economic policy support.

In the longer term there may be a need for non-regulatory support in the domestic oil and gas area. For example natural gas storage, safety inspections, and environmental preparedness are issues that could assume sudden urgency if a commercially viable domestic commercial oil/gas discovery is made.

PART 3: PROPOSED DIRECTIONS FOR FUTURE WORK

IMPLEMENTATION SUPPORT

The support of the energy sector by USAID must continue or there is a high risk the gains made up to this point will be lost. However, the direction of this support needs to change with an emphasis on creating self-reliance by the Georgian institutions involved.

The timing of our evaluation mission comes at a watershed point in both the Georgian reform process and in USAID's energy sector program. To this point USAID has been primarily focused on institutional reform and the development of agencies necessary to implement the regulatory process. At the heart of this focus has been the strategy to privatize energy sector organizations. The time is rapidly approaching when the emphasis will shift to implementing the reforms and handing of these reforms to the Georgians. Future USAID assistance should reflect this change.

We believe that this transition to reform implementation should be USAID's primary near term priority. Failure to continue professional policy support to the Georgian energy sector will run the risk that the substantial investments that have been made will be wasted or co-opted. A decline in policy assistance at this juncture would almost surely jeopardize the considerable institutional development and far reaching reforms that have been made over the last few years.

Work should include continued support in the critical area of revenue collection and distribution. Current metering programs have demonstrated that improved revenue collection is possible from residential consumers. However, the private western ownership of Talasi should be capable of implementing these reforms without USAID assistance. If the gas distributions system is privatized, the new owners should be able to model their own program based on the work of the USAID contractor. Any additional demonstration projects should be in areas that have not been privatized but only where there is some hope of attracting investors. In addition, we believe that there may be significant scope for improvements in the distribution of wholesale revenues back to the generating companies.

TARIFF METHODOLOGY

Although tariffs are in place, the low collections in both the electric and gas sectors make them irrelevant. If the collection process is successful, true tariff methodology must be created. This requires establishment of basic tariff principles to be used in Georgia and most important, implement the standards to be used for cost of service determination.

In turn, cost of service calculations require an appropriate accounting system; western style tariffs need IAS. The previous work in converting and training in IAS will probably need to be reinforced. The "social engineering" imposed on the residential electric tariff through an "inverse tariff" will place a greater burden on GNERC. Market forces will tend to encourage Talasi to market to large customers where there will be higher profit margins. Practices such as master metering to apartment buildings would be a way the utility could circumvent the tariff structure.

Tariff issues in the natural gas sector at the retail level probably will be easier and currently the wholesale market is controlled by imported gas. These international supplies are essentially excluded from tariff regulation. However, if significant domestic natural gas production is discovered, pricing of gas at the "town gate" could be a complex issue. Any indication of tariff control on domestic natural gas production should be strongly resisted by USAID. However, the domestic transportation of natural gas, like the electric transmission network, may require tariff controls.

It should be noted that this could be an appropriate time to re-evaluate the structure of the energy regulatory agencies in Georgia. They are currently set up on a "vertical" structure; one covering electric power, the second oil and gas sector. The "horizontal" model used in the US also could be appropriate. One agency covering the retail market (corresponding to a state PUC) and the second the wholesale market (i.e. FERC).

THE OIL AND GAS SECTOR

The program emphasizes the electric sector with only legislation and basic institutional reform established in the oil and gas sector. In part this reflects the lack of opportunities for reforms in the oil and gas sector, much of the drivers were external. This appears to be changing. The difference will be in the subtlety required in instituting reforms in this sectors. Since the political and legal position of many of the parties involved may constrain actions that can be taken. At this time the sector is very dynamic. It is foolish to try to anticipate all the support that should be provided but USAID must be prepared shift its emphasis to the oil and gas area. One area that should be considered is creating an independent energy information agency. Record keeping is probably good but it appears to be under the control of Georgia Oil and similar agencies.

The need for actions at the retail level are straight forward. If the privatization of the gas distribution system in Tablisi is successful, most of the gas distribution in the country will be private operations. The issues of terms of service and tariffs must be addressed. It is assumed this will fall under the jurisdiction of the State Agency although the comments made above regarding overall regulations need to be considered.

The oil and gas exploration potentially could create the need for support. Georgia, like many regions of the FSU is under-explored. It does appear to be on a geological trend that has shown great production potential. All available offshore acreage is under lease to Anadarko. Their exploration activities are progressing well but it will be a few years before any drilling activity would be considered. Anadarko is the largest US independent oil company and should have the necessary resources to fully undertake this activity. Onshore status could change quickly. There has been moderate oil and gas production in Georgia for many years. A number of smaller western companies are operating in the country. The most promising current activity is the fairly

deep gas exploration being undertaken by the CanArgo and AES joint venture. With success, rules for production will need to be formulated.

Currently, Georgian tax and regulatory law is very favorable to new gas and oil exploration. While some exploration interest has been shown there remain large prospective areas which are available for exploration. In addition there are large blocks of several current concession areas that will soon become available. In our discussions with the National Oil Company it became obvious that they have neither a plan nor the experience to promote Georgia's oil/gas potential to international exploration companies. An exploration promotion project might pay substantial dividends in increased exploration activities in the country. The terms of new concessions need to promote exploration of the deeper geological structures that are under explored. There would be a few downsides to this action. The existing leaseholders view the availability of un-leased land as a positive factor. If they viewed their current results as marginal, additional leasing could actually cause them to leave the country. The State Oil Company probably would be involved. Giving it greater financial and political power may not be desirable at this time.

The State Agency also needs to be prepared for regulating and inspecting the operations of pipelines. The gas transit pipeline from Armenia to Turkey appears ready for construction. The oil transit pipeline following the same route may be built in the future. There also is an existing oil pipeline system and the high pressure gas system of GIC. The State Agency needs assistance in formulating policies and rules. It also needs a strategy to exert its power without creating powerful enemies.

There is the possibility of the need for refining regulations. CanArgo appears to seriously working on a major refinery project. Developing product standards and enforcing them, even without a major local refinery, would help in controlling the product that is currently smuggled into the country.

MANAGERIAL TRAINING

USAID training activities have thus far targeted selective skills in individual energy activities¹³. Much of this targeted assistance has been provided to regulatory and legal staff. This targeted training assistance should be continued and wherever possible focused on accelerating the accumulation of hands-on regulatory experience. This suggests a reorientation from short reconnaissance-type visits to longer internship/on-the-job training.¹⁴

In addition to targeted training, we believe that successful implementation of the reform process will require new managerial skills throughout the energy sector. This will require a new, more formal 'short course' type of training. This training needs to be carefully designed and fairly extensive. The objective should be to create a cadre of commonly trained managers who can implement reform from within all of the major energy institutions. We believe that this training optimally would be provided to 60-75 mid-level professionals scattered throughout the energy sector. The training might be provided in relatively large groups of say 20-25 individuals to minimize costs and in the hope that personal relationships are established that can facilitate

¹³ The major exception to this pattern is the accounting training provided by Carana.

¹⁴ It is conceivable that such a reorientation of targeted training might alter the training relationship between USAID and USEA.

liaison between the agencies and institutions of the energy sector.¹⁵ In developing and implementing such an ambitious training scheme USAID should be the lead agency. However, substantial financial and/or professional assistance can be obtained from other organizations. In particular, the World Bank's educational organization and USDA Graduate School have extensive experience in this training area.

ENERGY EFFICIENCY/ DEMAND SIDE MANAGEMENT

Beyond implementation support activities there is considerable scope exists for expansion of the energy conservation /DSM work. In addition to continuation of the existing residential demonstration projects we would suggest that new work in this activity be directed at industrial consumers. Since industrial energy conservation projects almost always involve improvements in overall operational efficiency, an expanded initiative in this area will have the added benefit of increasing the competitiveness of the Georgian industrial sector. In selecting candidate industrial projects special attention should be given to those industries with export potential. An industrial energy efficiency program will inevitably be more expensive than the residential activities currently being undertaken. We believe that over a three-year period industrial conservation/DSM projects might require funding 150- 200% greater than the current residential program.

DEVELOPMENT OF INDUSTRIAL CUSTOMER BASE

Under the Soviet Union, Georgia had a substantial industrial sector. Much of this has collapsed along with the industrial demand for energy. It is difficult to operate a viable utility system with mainly residential customers. They tend to have poor load factor characteristics with high customer service costs. It is not the role of the USAID Energy and Environment Office to promote general industrial development, although it would help the energy sector, but there are related industrial operations that are within the energy sphere. Regrettably, one of the legacies of the Soviet era is that many of the goods and services required by Georgian energy enterprises must be imported. In the short term there is simply no way to fundamentally change this situation. On the other hand, there are private energy equipment industries (electrical meters, circuit breakers, oil drilling pipe) currently operating in Georgia and with the pending development of major transit pipeline projects there will soon be opportunities for new pipeline construction support services. We believe that "the energy sector" should be defined to include these support industries in much the same way that we propose to increase industrial competitiveness (and the attendant ability to pay energy bills!) by initiating an expanded industrial energy efficiency program.

Beyond a few obvious targets we lacked the time to explore this potential. However, we believe that support to these linkage industries is a logical extension of current USAID activities in Georgia. We suggest that a modest project formulation study be initiated to; a) clearly define a program to support already identified opportunities like pipeline support services or electrical meter sales and, b) assess other already existing linkage industry opportunities. The emphasis in such a study should be on identifying how USAID might assist existing linkage industries to improve their competitive position, expand their markets and increase their commercial viability.

¹⁵ In our view, the lack of inter-agency liaison and communication is a subtle but very important constraint on energy sector development in Georgia.

ENERGY SECTOR ASSET RATIONALIZATION

Prior to the breakup of the Soviet Union, Georgia had approximately 5,200 MW of generating capacity and was a substantial exporter of electricity. Its gas transmission and distribution system met its need as did its oil pipeline system. Over the past ten years many facilities fell into disrepair. Rehabilitation projects seem to have had minimal long-term planning; assets that were privatized seem to have been selected as the most profitable for the inventors, not how they fit into the strategic needs of Georgia. This is perfectly rational behavior by the investors but it leaves "holes" in the country's energy system.

Rationalization of the energy system's assets should have the following components:

- ▶ Identify assets that are in such disrepair as to be useless and "get them off the books". For example, some units at the Gardabani thermal power plant are so "cannibalized" that they no longer even have usable spare parts.
- ▶ Identify remaining "bottlenecks" in the system that need immediate work. If these require major capital expenditure try to expedite action by World Bank, EBRD or, if feasible private investors.
- ▶ Identify assets that only require relatively minor rehabilitation or repair investments to return to services. Even if they represent a degree of excess capacity, the long-run benefit probably is worth the investment.

To facilitate the implementation of some of these projects a financing vehicle needs to be created. In Hungary, the EBRD created a fund (administered by a local bank) that funded projects in the Agribusiness sector. This was aimed at rehabilitation and maintenance projects as well as smaller capital projects. It met the need between working capital financing and capital market funds. USAID should try to promote (through EBRD or World Bank) a similar operation for this energy sector in Georgia.

This basic physical plant in place is of Soviet design. There are many similar units in other countries in the region. A regionally coordinated spare parts inventory would be efficient and cost effective. Even the AES Gardabani power station has a very modest inventory of spare parts. If parts are needed, long lead times are required, potentially shutting down the unit (90 day lead time for Ukraine turbine blades was cited). The previously mentioned financing fund would be an ideal source of financing this operation. Later this operation could be expanded to a regional coordinated procurement program.

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